TRANSCRIPT OF THE LOUISIANA PUBLIC SERVICE COMMISSION BUSINESS AND EXECUTIVE OPEN SESSION HELD ON NOVEMBER 17, 2022 IN METAIRIE, LOUISIANA. PRESENT WERE: CHAIRMAN LAMBERT BOISSIERE, III, COMMISSIONER CRAIG GREENE, COMMISSIONER MIKE FRANCIS AND COMMISSIONER ERIC SKRMETTA.

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CHAIRMAN LAMBERT BOISSIERE: Good morning. That's hot, hot mic. I'd like to welcome everybody to the B&E, the November B&E in lovely Metairie, Louisiana and the metropolitan New Orleans area. Thank you all for joining us and coming out. I'd like to thank everyone who's watching us by livestream or audio. Would like to start off the meeting and I'd like to ask Commissioner Francis to lead us in the prayer.

[COMMISSIONER MIKE FRANCIS LEADS IN PRAYER]

CHAIRMAN BOISSIERE: Thank you, Commissioner Francis. At this time, I'd like to ask Commissioner Francis to hold the flag.

COMMISSIONER FRANCIS: Yeah. I'll put in a little plug for the Boy Scouts, be prepared. Okay. Everybody ought to have one of these in your back pocket. All right.

CHAIRMAN BOISSIERE: And at this point I'd like to ask Commissioner Skrmetta to lead us in the pledge.

[COMMISSIONER ERIC SKRMETTA LEADS IN THE PLEDGE]

CHAIRMAN BOISSIERE: Let's let Brandon start us off. Staff.

EXECUTIVE SECRETARY BRANDON FREY: Good morning, Mr. Chairman. Before we -- I don't think we have any changes -- well, there's nothing being deferred. I think we are going take a few items out of order, the two discussions under Exhibit 8, which will be a discussion with MISO CEO, Mr. Bear, as well as a presentation from Dr. Dismukes. We're going to do those at the beginning of the agenda following announcements and then go into the regular agenda. Staff does have a few announcements. Where's Ms. Evans? There you are. That side.

MS. LAUREN EVANS: Good morning, Commissioners. Lauren Evans. I do want to remind everybody that the public utility CLE will be held on Friday, December 2nd at the Baton Rouge City Club from 7:30 to 3:00. CLE credit is pending for six hours including ethics and professionalism. Online registration is available through the LSBA CLE page until November 30th, and in-person registration will be available the morning of. I also want to mention there will be a raffle to benefit the Greater Baton Rouge Area Food Bank. Tickets are $10 each, cash only, and will be available for purchase at the CLE.

MS. KATHRYN BOWMAN: That's all the announcement Staff has.

CHAIRMAN BOISSIERE: Commissioner Skrmetta.

COMMISSIONER ERIC SKRMETTA: I'd like to thank the Copeland Towers for hosting us today, as a public service for us, been very kind to do this in the past and kind enough to host us again today, so many thanks. And secondly, I'd ask y'all to join me in well-wishing applause to Commissioner Greene. Today is his birthday. So thank you.

MS. BOWMAN: Happy birthday.

CHAIRMAN BOISSIERE: Now, I have a few announcements. Number one, I would like to wish Commissioner Greene a very happy birthday today, so let's all wish a happy birthday to Commissioner Greene.

COMMISSIONER SKRMETTA: Sing?

CHAIRMAN BOISSIERE: Somebody say sing? Did somebody say --

COMMISSIONER SKRMETTA: Sing, is that what you said?

CHAIRMAN BOISSIERE: No, no, no. It's not Chuck E. Cheese so no big bands and drum [INAUDIBLE].

COMMISSIONER SKRMETTA: And no pizza?

CHAIRMAN BOISSIERE: And many more. I wish you the best and many more. In addition to that, I would like to congratulate Commissioner Mike Francis on a successful and convincing victory for reelection.

COMMISSIONER FRANCIS: Can I give a two minute speech? I want to thank, first of all, my wife for putting up with me during this campaign and these last six years and so many, from the fellow Commissioners for all your support, for the Staff there, Brandon and all your crew, thank you. Especially for Janice Perkins. She's the ramrod in our office, and she's really been a blessing. I've been here six years and she's been here probably 24 or something like that. So she's -- she's been a wealth of experience. She's really helped me. And so many out in the audience who've trained me over the last six years. And we've got six more years to go. Just remember, when your education is finished, you've never begun, so I'm still a trainee, and I would appreciate your continued help here. And let's see -- I think

I've touched everyone. I think lastly, I want to thank the chairman, Lambert Boissiere for his help and the leadership here in this year as chairman and I also strongly encourage folks to reelect him. You have all my support completely and without question, Lambert. And we're looking forward to your reelection, brother. Okay. Thank you.

CHAIRMAN BOISSIERE: Thank you, Mike. Thank you very much. I greatly appreciate it. Commissioner Greene.

COMMISSIONER CRAIG GREENE: Thank you everyone for the birthday wishes. I feel very fortunate and the way I really expand on that is to say grateful. We're a little bit of the walking wounded up here. I feel like I should be the Commissioner team doctor. I got an elbow surgery here, a shoulder surgery here. Francis -- Foster had his neck issue. So Mike, you and I need to tread carefully. So I'm also very grateful, you know, no matter what side of the fence you're on with politics, to live in a society where we can have free religion, free speech, and voting. No matter how the midterms turned out for you, to be able to elect the leaders in a civil manner is something we should never take for granted. And I have a lot of gratefulness for that. Echo Mike's thoughts on Lambert, I look forward to working with you for another six years. I know this race is made you stronger. I also want to point out we have a team member, Sharon Dungan, she worked with us for the past 17 years, and she passed away this week. And so we're going to miss her dearly. Keep her in your thoughts and prayers. And Randy Pierce, I didn't know your father, but our sympathies for your loss of him as well. So thanks everybody for being here, and I look forward to a good meeting.

CHAIRMAN BOISSIERE: Does anyone else have one? I have some closing remarks. Okay. First of all, I'd like to say thank you to NARUC for using New Orleans as its host city, and bringing the rest of the country here to New Orleans to discuss utility regulation. I haven't seen the numbers yet from that, but I hear it's one of the largest attended NARUCs in recent history. Once again, New Orleans has shown they can pull off great and large events successfully and not only is it great to bring your work and your business to New Orleans, but also to have fun and a good time and to have a vibrant evening and night life as well. So thank you to NARUC for that. You may have noticed that we're missing one commissioner, Commissioner Campbell is out today. So he's excused. And once again, we echo Commissioner Greene's thoughts. It's very dangerous to be a Commissioner. There's a lot of surgeries happening up here right now.

COMMISSIONER GREENE: I don't think I'm going to get swung at today.

CHAIRMAN BOISSIERE: I think you're at least safe. So once again, be careful Commissioner Francis. Okay. Back to Staff, please. Next item.

MS. BOWMAN: So good morning, Commissioners. We do have 10 agenda items today. And as Brandon's already indicated, we're going to start with Exhibit Number 8 and under discussions, there's a discussion with Midcontinent Independent System Operator's CEO, Mr. John Bear. And for those following along on YouTube, the presentations are posted to our website so if you would like to follow along, you can do that as well. And just for the gentlemen walking up, just introduce yourselves, please, before. David, push the button at the bottom, yep.

MR. DAVID GEARY: Mr. Chairman, members of the Commission, my name is David Geary and I'm a consultant to MISO. To my immediate left at your invitation, Mr. Chairman, is Mr. John Bear, who's the chief executive officer of MISO. Further to my left is Daryl Brown who is executive director of the South Region. We appreciate the opportunity to present to you and hope to have a good discussion of the issues that MISO sees in the entirety of its region and in the south. With that Mr. Chairman, if you don't mind, I'll turn it over to Mr. Bear.

MR. JOHN BEAR: Thank you, Mr. Chairman. It's an honor to be before you all today. I appreciate the invitation and the opportunity to do so, look forward to a good dialogue today. A little over 10 years ago today, with the Commission's approval, the South Region joined the Midcontinent Independent System Operator, MISO. We've been very pleased with that. I think over the last 10 years as we reflect on that and look back at it, we've seen about $12 billion in value created for end-use customers, which I think is important. And I think the partnership that we've had with the Commission Staffs down here as well as the Commissioners and our members, we have really, I think, done a good thing with reliability. So I think the combination of whole competition, great retail rate regulation has been a great combination for the customers in the south, as --in particularly in Louisiana, which I'll talk a little bit more about. The important thing we want to talk about, though, is the transition forward. What got us here won't get us where we need to go, right. Things have got to change pretty significantly because things are changing around us very significantly. So what I want to do is touch on each of those things today that we're working on with you in partnership to make those

changes so that we can ensure as decarbonization happens -- the transition to decarbonization happens in a very nice reliable way that's affordable and also happens very nicely for all the customers so that they don't notice what's going on and that's the objective, right. So everyone is real aware that there's a pretty aggressive decarbonization movement in the United States going on. It's probably happening a little bit quicker in the north and the central parts of MISO than it is in the south, but it is coming to the south and we are seeing those things happen. MISO Zone 9, which is Louisiana, is tight from a capacity standpoint, and we see a lot of things out there that really give us indication that we're going to be short from our desired reliability risk profile in the South Region, and particularly in Louisiana, very quickly. We're seeing a lot of things move from Europe to the U.S. in terms of manufacturing capabilities. We're seeing it happen in Ohio. And one of the biggest places we're seeing it is in Louisiana. If you look at what's happening there and the billions of dollars that are being invested. It's exciting opportunities, but it also gives us a lot of challenges that we're going to have to work on together to make sure that can happen in a reliable and affordable way. So a couple of things that we're thinking about as this decarbonization moves forward that I'll talk about here in a minute. Number one is we're seeing a lot of renewable, intermittent resources come on the system. We're seeing that that is going to accelerate even faster with the Inflation Reduction Act and I'll show you our interconnection queue which is astounding, and I think shows you that the different incentives that are out there are being reacted to by the industry. But as we do this, we also need to make sure that we have a good transition plan, right. We've got to make sure that we've

got controllable generation that can run for long durations of time so that we can make sure that we can balance the intermittent generation as it comes online. As we do that, there are a couple different things that we're working towards. One is a better accreditation of those resources. How much do we actually have? How much can we actually count on when and where we need it? So we made changes that were approved by FERC last year to give us a seasonal view of our resources and also to differently accredit those resources so that we can really count on those. Those things together are giving us pressure in terms of the amount of resources we have to serve the load. And Louisiana's no different than the rest of our footprint. We have a lot of older fossil fuel plants that were not getting the investment that they needed over time, and they were performing more poorly. And during the summer, we were having them perform very well this year, which was fantastic, right. It really helped us through things. But what we've seen during some system -- stressful system conditions is 25 to 30 percent forced outage rates on some of those units. That's concerning. So we need to make sure that the investment is happening within those units and that they're ready to run when we need them. So I think the new accreditation is going to give us a much better look at that. It's going to be a little bit lower than we're used to seeing, but I think it's a better view of reality and transparency for us so that we can see those things. The things we're working on this year is the accreditation of the non-thermal resources, so the wind and solar, storage, batteries, hybrid resources, and those kind of things. We'll be finishing that by the end of this year. The other thing we're doing is going and looking at our price signals, right. And there are two areas we're really focused on

with the Organization of MISO States. The first is looking at our planning reserve auction, making sure that the price signals are appropriate so that what happens within the system and those underlying system conditions is reflected in the price of resources that folks are buying within that auction. The other thing that we are looking at is how much of those resources should be actually built within the region that they're going to serve as opposed to how much can be bought and brought in from other regions. Obviously, transmission plays into that, but also we want to make sure that planning is happening, people are doing future planning and doing it appropriately so that that's there. We have a -- what's referred to as a vertical demand curve right now. What that means is that until we're short, the price is pretty low. And what you saw last year in MISO Central and MISO North was that the price came up significantly to the cost of new entry reflecting that we were below the resources that we were looking at in terms of our risk profile, right, our reserve margin. So we went from one day in 10 to one day in 5.6. And my concern is that same set of circumstances that happened in the north, which is the accelerated retirement of assets, load growth, which is something that we haven't talked enough about, and then those things together is going to cause us to be in a similar situation in the south very quickly and in Louisiana in specifics. If you think about the load growth that I talked about before, the investment that we're sitting there, and I think there was even an article in The Power Daily today from LSU with a study they've done looking at the load growth that's happening. I think we need to think very quickly about the resource situation in the south and in Louisiana to make sure we can address that appropriately. So with that, I'll sort of walk through the

presentation for you guys. I think on Page 1, we've covered that piece, in terms of where we've been. I'll take you to Page 3, which I think is a good thing to reflect on and think about in terms of our partnership that we've had with the Entergy Regional State Committee, with our members down here, and moving things forward, so we've been able to largely defer a lot of investment that would have been required otherwise by your customers. That's essentially what this tells you. So you can carry less resources and because of the interconnections and the dispatch and the diversity that our footprint brings you, we can create value for you and I think you've seen that happen. And we've done that by maintaining the level of reliability that you all require and that you deserve. So if you look forward and think about what's changing, and let's talk about a little bit of a from/to now of, you know, what got us here won't get us where we need to go. You've got the EPA and the regulations that are putting pressure on existing power plants. You've got renewables that are showing up in our interconnection queue and are going to be coming online. We're seeing a lot of solar showing up in the south now which is good. And you've got load growth that's happened and so all those things together are going to require us to change how we do things across the board. One of the -- so Page 4 is where I am next. So that takes us to our reliability imperative. And the reliability imperative is the framework and the program within which we are putting all the things we're doing and working with our state regulators as well as our members to move MISO forward into this future. I'll talk a little bit more about this, but essentially it has four key pieces. Market redefinition, which is really us looking at the different market signals that we have and price signals that we have,

so that number one, we're reflecting the underlying conditions on the system at all times from both an operating horizon as well as our planning horizon, which I talked about a moment ago in terms of making sure that that price signal for capacity resources and accredited capacity resources are appropriate and give the right signals for us going forward. The long-range transmission planning, which is a great mix between market signals and transmission planning which is taking place. So to the extent we can get transmission in the right places, it can add tremendous value. It allows us to move those resources around much better and easier and capture that load diversity that I talked about, right, so those kind of things are really important as we move things forward and can minimize the amount of investment that's required whether it's on renewables or whether it's other controllable capacity, such batteries or power plants or anything that's there because we can move that around to get the most out of it for your customers who are paying for that. Market system enhancement is MISO making changes in its own underlying systems, so that we can do all the things that we need to do and coordinate with our members as best possible to do those things. And then operations of the future is something that we do inside of our own control room because everything in there is changing. If you think about the system that we operated, which I'll talk about in a moment in the past, it didn't have all the variability in it. We're working now to forecast wind, to forecast solar, not just forecasting where the load's going so that we can make sure that we get the best mix of dispatch, to keep the cost as low as possible and keep the reliability where it needs to be. So those are significant changes taking place in all of those areas.

If you'll go forward to Page 5, I'll talk a little bit more about what's changing because sometimes we think we know where we are and we have a different view on that. So let's talk about that for a moment. In the past, we've largely had controlled resources, right. We had large power plants and gas power plants and coal power plants. In 2005, I think we had less than a hundred megawatts of intermittent generation in the MISO. So now what? Now, fast forward to today where we're close to 30 gigawatts. It's pretty significant, right. Things have changed. And not only are we just forecasting where that load needs to go and the expectations of how those generation units are going to perform, we're also having to think about the wind and solar and how we do best maximize that, right. Because number one, we want to anticipate it, but number two, we also want to maximize the investment that your customers are making, so that it's not trapped somewhere, right, or we're having to shed it. Reserve margins were big when we first started MISO, right. We had 25 to 30 percent reserve margins. Now, why were they so large? Well, everyone was looking at things in a much smaller scale, so they needed to carry larger reserve margins to handle reliability. As we interconnected MISO and brought the dispatch together, folks had to carry a lot less resources. That's that benefit that we talked about earlier that gets generated there. And the key is to make sure that we do the right things going forward so we can maintain that benefit. And I think we can even grow that, based on the forecast and the analysis that we've been doing. Predictable resource outages, we had everybody ready to go in the summer and folks took their outages in the winter and the shorter months. Well, unfortunately, we have to change that behavior because with an efficient reserve

margin, which is important, right, and renewable generation, which is less predictable, we need to make sure that we have those controllable assets when we need them, where we need them to make sure we can maintain reliable operations. Focus is on providing energy in the worst hour -- I say the worst hour -- the hottest hour of the hottest day, right, that was our peak. And if we knew if we had enough to provide that and we could sustain an outage of our largest transmission line for our largest generating unit, we'd be okay, right. And that's the risk evaluation that I talked about. We've got to completely change our mindset about how we think about that risk now because we see variability on an hourly basis inside the control room, which is much bigger than the largest unit and it's much bigger than the largest transmission line. So we've got to make sure that we can accommodate that. And that's pushing us back to the market definition and into the transmission planning to make sure that we have the right resources that we need that can provide the right performance that we need and we have the right checks and balances so there's accountability there and there's also incentives there to make sure we can provide those to the customers when they need them. Forward to Page 6, please. We've had a very successful partnership between our members and between our regulators, OMS, and with MISO to make sure that we can manage resource adequacy. You can see as we go along here what's come into the interconnection queue over time. And let me step back for a moment and talk, maybe, about 2012 and '13, where we did have some concerns about resource adequacy, right. And we voiced those concerns, we made them transparent, which is one of the values of our relationship with OMS and the survey that you see come out of there from a

resource adequacy standpoint. And you'll see the reaction in 2014 and 2015 of additional generation coming online. So those voices were heard. The actions were taken within integrated resource plans and planning of our members and our commissions and things move forward. Well, what we're seeing is things go forward as concerns, and you've heard concerns from us as we, for the last year, for the first time dipped below our reserve margin requirement of one day in ten. And what you'll see is when you look at 2021 and 2022, submissions into the interconnection queue, it's a lot of intermittent resources. No surprise, that's the Inflation Reduction Act and some of the incentives that we're seeing there in terms of solar and wind. You're also seeing a lot of batteries, which is fantastic, right, so that's showing up. But what we're concerned about is that transition period where we need the controllable generation to balance those intermittent resources and we're not seeing it show up inside the interconnection queues, so that's the concern that we're bringing to you. So one more look at that going forward is what we call our resource assessment that we do. This is really stepping back and working with all of our members and making sure we that we understand the strategies that they are putting forward, the things that they brought to you and that you've approved that they're going to do over time, the decarbonization goals that they have, you know, all those kinds of things. And what you can see here is a look at the load forecast under our different futures. So Future 1 is the dotted green line, closest to the bottom, right, which is a little bit of where we've seen everybody at now so it assumes that no one's going to get more aggressive. If people do get more aggressive and we have some electrification take place, you'll go up to the dotted

line up near the top, right, so that's the two pieces there. Our concern is that accredited capacity line. So I talked about us needing to understand how much capacity we have, what season do we have it in, and where is it locationally, right, so we can make sure we manage the system. And what you're seeing is that red line at the bottom, which is our cause for concern. When you combine that with the interconnection queue piece that I showed you all before, you know, we're just concerned that there's not enough controllable, long-duration resources being added to the system at this time, which is going to put us at greater risk. If you go forward to Page 8, I just want to touch on what we're seeing in terms of the control room and the risks that I talked about. If you go back to the chart that I talked which said, sort of, we came from here and we're going to there, so what we're going to have to do to make sure that when we get there, we're prepared, this chart [INAUDIBLE] gives you a good sense of that. So before really the only variable issue we had was load, right. So if we could forecast that, we would be pretty accurate and largely that was driven by weather, right, which has helped us. Now, today, we're forecasting wind, we're forecasting solar, we've got generation availability that is more variable than it used to be. Fuel delivery is a concern, and we're watching that. That was a big issue during storm Uri. The net scheduled interchange which is the amount of imports and exports that MISO manages and operates as well as transmission congestion. So there's a lot of variability going on and the tools we're building in our control room using advanced data analytics and other things to manage those is in a good place, but we still have a lot of work to do to get it where we need it to be, right. And then we're also stepping back and

working with you all to understand how do we think about the risk that's on our system and how do we express that, right, how do we think about it. So if you look at the top, what you'll see is a 12-day period during two -- during January and February where you can see wind output dropping significantly, right. And the only reason I want to point this out is we think about the amount of reserves we need on the system at a specific time, this is changing our mindset, right. This is a much bigger drop and this occurring across MISO, SPP, ERCOT, and PJM than your single transmission line or your single generator. So to make sure we can manage this risk, we've got to think about things differently. And that process is underway and we're moving that forward. You can also see at the bottom, you know, the risk that we find when fuel deliveries are a challenge and we have a lot of outages either through cold weather and plants that can't start or fuel delivery where it can't get where it needs to go. So a big risk that we're thinking about and how to balance those, which has led us to what's on Page 9, to think about our attributes, right. What are the attributes that came with all of that controllable generation that we had on our system that we didn't really think about because we had an excess and abundance of all of those, right. So some of those are starting to get a little bit short as we retire that thermal generation and we just need to be mindful of that and think about going forward what do we need, how much of it do we need it, and where do we need it, right, so that process is underway. And the one that I will probably draw you the closest to you is the bottom of that, the long-duration energy at high output, right. That's what we need to make sure we've got so that when you incur situations like I showed you on the prior page, you can

handle them, right, and we can manage those. And we can make sure we do it efficiently so that we keep affordability at the forefront of our conversation as well as reliability. So all of those different things are under study right now within our stakeholder process as we look at those. It's going to inform us on what our next steps are as far as our market redefinition and the changes we're going need to make there as well as our transmission planning so that we can make sure that we find the most efficient way to provide these attributes and share them, right, across the system so that we can move them where they need to be and where they need to go.. Page 10 will give you a little bit of kind of what we're doing and what we're working on at a little bit lower level. So that seasonal resource adequacy construct that we talked about, which is going to be put in place this year, is already moving forward and I think that's going to give us a much better view of where things are and I think it's going to give our members a more efficient way to operate their plants as well and a different way to think about the resources. The accreditation changes that we're working on will significantly improve our ability to manage the system because we'll know exactly what we can count on and where and when we can count on it and then updating those planned outage thresholds to make sure that we can ratably manage the outages that need to take place so these plants get the maintenance that they need to get, or I should say the resources to get the maintenance that they need to get, so that we can manage reliability and keep the reserve margins as low as possible. So that's what we're after there. So now let's look at Louisiana a little bit more of a specific basis. Because I talked to -- about our planning reserve auction last year which in the north and central part of MISO

bumped up against the cost of new entry because we were short. We were below where we needed to be. And you say, well, that's -- how do we get short all of a sudden? Well, it's one of those things that when we look at the OMS-MISO survey, we looked at it from a static standpoint, but we also did some probabilistic assessments around that. And we said if we have increased retirements of generation resources, if we have load growth, it's going cause us a challenge, and unfortunately, we had both. So as you look forward and you think about what's going on within Louisiana, Zone 9, I believe, is about a gigawatt long last year within the planning resource auction. Our concern and the concern that we need to work with you on is that we think that that is going to change very quickly. There's a tremendous amount of manufacturing relocation into Louisiana as well as other places like Ohio. I was with my, sort of, industry peers across the globe from Europe last week talking about this and they're seeing the manufacturing load drop there and move to the United States. I think we saw 2.5 percent load growth within Ohio projected for this year, so it's already taking place. There's north of $100 billion of investment coming into Louisiana, which is fantastic, but that's going to generate load growth. And when you look at the transmission submittals of Entergy and others in the South Region, Cleco, for the transmission expansion planning process for MISO next year, it's north of $3 billion, which is largely to interconnect and manage this new load and these new opportunities from an industrial standpoint. So there's a lot of exciting stuff happening within Louisiana. I just want to make sure we get the right things put in place so we can manage those. Now, our FERC filing that I talked about did give us the seasonal accreditation and

it did give us better looks at accreditation, so that we could account for the resources that are there. What they didn't give us was something we asked for which was more of a local requirement within the zones. We asked for a 50 percent requirement. I think that number started much higher, but through a stakeholder negotiation, it ended up at 50 percent. We still feel strongly about that and filed it at FERC for a rehearing on that. And there are several states within MISO who have those local requirements. Indiana, where I live, for example, has a 70 percent local requirement, and there are other states that have them as well and there are even more states now that are looking at them and thinking about does it make sense for us to have one of those, where if we combined a local requirement with the better pricing mechanism, which is the -- I think the current terminology is the revised demand curve, which would effectively slope upward as we get close to our reserve requirement from a risk standpoint. And if we combine those two things together, it gives us the best chance to make sure that good planning is taking place, there is pricing and accountability in place so that your customers who build those resources are appropriately compensated for those, and it makes sure that there's also a consequence for those folks who don't do the planning and have to go to the market to buy the last part of the capacity that they might need. So if you go forward to Page 12, I think we've talked about most of these things, but there's the seasonal risk that we've talked about. There's some restricted availability issues that we're working on and those are resources that are only able to run in emergency type conditions. As we see, emergency conditions occur more and more frequently, that's going to become an issue, so we're working to work on those kind of things.

And then there's the resource retirements that we talked about there. We've got the CSAPR or the good neighbor rules that the EPA is enforcing that are causing some earlier retirements that we had planned on within there. And then the new resources in the queue, again, we've got significant resources in that queue which we can get through there, but we want to make sure that that long-duration controllable generation that we talked about is there, right. And it usually takes 24 to 36 months to get those things put in place right now as we work on the transition, so as we do that, we want to make sure that the planning is taking place. Page 13, as we talked about, our minimum capacity obligation which was rejected by FERC. We have filed for rehearing so that we hopefully can have a better discussion about that with them going forward. And as I also noted, there's a lot of states that are coming in behind that and working on their own minimum capacity requirements, Indiana, Michigan, others are already have them and then we're moving forward with probably four others that I'm aware of where we're having discussions about how do you think about that, how much should it be, and how do we do that? And again, to make sure that we get things in place so that we have the appropriate planning and the appropriate mechanisms that we need to get where we want to go. I think I've covered everything on Page 14 already for you all. So what I'll do is pause and take any questions that you all may have or have any discussion that you would like to have.

CHAIRMAN BOISSIERE: So this is the conclusion of your presentation? Are you -- I don't want to interrupt anything else before we ask questions or make comments?

MR. BEAR: I am at your disposal.

CHAIRMAN BOISSIERE: Great. Thank you. Commissioner Greene,

COMMISSIONER GREENE: John, thanks for being here. You're always well represented by your team here and we certainly rely on y'all a bunch. And you and I had a fruitful conversation before. I'm going to share some of my thoughts and concerns. You know, sometimes I'll ask patients if it's a difficult conversation, do you want it straight or sugarcoated? And everybody says straight, so I think I'll just keep it straight, if you're -- that's good with you. These are difficult questions, but I think in asking them it'll be an iterative process to better and I hope we continue to ask those questions. As you know, reliability is the most important thing for this Commission to consider, but we also want to make sure that we're -- our customers actually demand that there's a problem we're trying to fix before we put solutions to it. And right now I think its good caution to have, but I have some clarification points that I'd like to expound on if not to answer fully today but just to be answered in the next season of time.

MR. BEAR: Sure.

COMMISSIONER GREENE: You know, Louisiana -- I'm excited about where we're heading with the renewable standard, but we're not there yet and I don't know if we'll -- that's just always going to be a moving goalpost. You and I were talking about, earlier, about, you know, part of Europe's problem right now is a lot of the goalposts that they had in mind for a renewable standard and where that's landed them. So I think it's good to have that as an awareness as long as we're good stewards of what we've been given, as long as that's in our conscious as we're

making these decisions, I think we're going to continue to make sustainability a priority. I don't think it'll be a point in time that we arrive at. I think it's a process that we employ throughout our decision-making. And the same thing with carbon -- a carbon mandate. I don't know that were going to arrive, but as long as it's our awareness. One of the things I'd like clarification on is in the '22, '23 PRA, it seems Zone 9 had over a thousand megawatts of extra capacity sitting idle and the MISO South together has 4,400 megawatts of extra capacity and I know that in the queue the most activity is in MISO South, Zone 9 specifically, showing 23,000, I think, megawatts in Louisiana and 4,000 megawatts in Texas between Orange County, Magnolia, renewables, et cetera. So the storage capacity in the queue is that counted in the we might run short in the near future alarm?

MR. BEAR: It is, yes.

COMMISSIONER GREENE: Okay. The other thing is FERC, themselves, when they rejected the MCO proposal described several options that load-serving entities participating in MISO have available to them to adequately provide for their planning reserve requirement. And FERC discussed the dangerous market power that certain incumbents have or could have if the local requirements were to be adopted. It sounds like from visiting with you off-line, we're taking into account the next 10 years and beyond might not look like the past 10 years and so I encourage you to continue to have an open mind about that because it's like the young man who got married and his wife cut off the two parts of the -- two ends of the ham and put it in the oven and he said the only reason he did it was that's the way -- or she did it because that's the way her grandma did it. And when he asked

the grandma, they said back then we didn't pots big enough. And I think right now we have a cornucopia of sizes of pots and pans to meet our needs, and so please continue to take that into account. Resource adequacy we know is incredibly important. And importantly, there are several tools to address this transmission, demand response, energy efficiency, and generation and we know that we have to take all of those into account and are evaluated before we bring the most cost-effective solution to customers. This Commission wants nothing more than to keep the lights on and we take our jurisdiction over resource adequacy very seriously. And I think I speak for all of us in that. In light of that, our utilities take part in IRPs and we're glad to be a part of an RTO that affords our load serving entities the ability to connect to different resource options. Based on some of the things today, I feel the need to remember that it's the PSC who has the jurisdiction, but we do consider y'all a very valuable resource in that, and so we appreciate your independence on that as well. We need an independent voice to help make some of these difficult decisions. And to the extent that we're evaluating new rules, I think they should complement MISO's rules because we know that y'all take into more of an account than just Louisiana. And not make MISO membership obsolete, we're a proud member. We appreciate your input here and we definitely want to utilize all options to reliably serve Louisiana customers in the most affordable manner. I think -- I'm about to wrap it up. I also think that others have a role in providing this Commission with information. And these issues are incredibly complex and not everyone shares the same opinions, and so I would like to request, Mr. Chairman, also invite the independent market monitor Dr. David Patton to

come give a presentation on these issues. I see the way I see that is trust but verify. I think there's -- it's like Abraham Lincoln said, there's thesis, antithesis, synthesis. So out of the most disagreeable thought will come a very sharp one. Not that there would be much disagreement but just further conversation so. He informed ERSC yesterday and presented to OMS that his insight, I think, would be helpful for us to find the right answers. So thank you for answering our questions and being here. I kind of feel like the president and the vice president are here at the same time. There should be security, right? Thank you.

CHAIRMAN BOISSIERE: Thank you, Commissioner Greene. Anyone else? Commissioner Francis.

COMMISSIONER FRANCIS: Mr. Bear, thank you for coming. Appreciate that. One of the things I see in your leadership is the people you surround yourself with. You got two hosses there sitting on each side of you. Appreciate that. Mr. Geary's helped me a lot to understand all the complexities of the RTOs and the MISO grid and also Ms. Jamie Watts, so you're very wise in selecting some good Louisiana help. I wish there was a way that, you know, when I built my business, I used the KISS method. I look in the mirror every morning and I say keep it simple, stupid, you know. And man, this is some very complicated business. I represent almost a million people in Louisiana. I wish I could explain the RTO system to more of them and if there's any way you could help us with that, I'd appreciate it. But a lot of people don't understand how important it is. Your overview is over 15 states in the generation and transmission lines, and that's very important. When you're talking about Louisiana, what we're going to do in the future, I'm excited about all

the folks that are coming to Louisiana to build industry. I really believe it's going to be big for the next few years. Would you say -- put it real simple, Louisiana's an exporter of electricity? Would that be true?

MR. BEAR: I believe that is true today.

COMMISSIONER FRANCIS: What's that?

MR. BEAR: I believe at times it's true, but there are times when Louisiana is an importer of electricity as well. And one of the things about our market operation is when it's less expensive for you to bring energy in from somewhere else, we do that to make sure that we can keep the rates --

COMMISSIONER FRANCIS: Right.

MR. BEAR: -- for folks as low as possible. So it moves in both directions.

COMMISSIONER FRANCIS: Okay. Well, I know in my area, we've got a lot of green movement going on. I have $18 billion worth of projects that possibly would, you know, be into the green and so I'm really going to be looking to your expertise. I feel like at MISO, overview of 15 states, some of the smartest people in the world, you know, that work with you and for you. So we really appreciate anything you do to help us solve some of our problems in the future. Thank you very much for coming today.

MR. BEAR: Thank you, Commissioner. We look forward to working with you all as we make this transition, and I really appreciate the opportunity to visit with you today.

CHAIRMAN BOISSIERE: Thank you, Commissioner.

COMMISSIONER GREENE: Can I just add one thing to anybody else looking, Louisiana is open for business so we're trying to keep it coming, huh, Mike?

CHAIRMAN BOISSIERE: Well, that's right along the lines of the question I had. In your presentation, you mentioned the developments and the growth potential of Louisiana. Do you have or could you say what's the driver of that as you look at the power or utility? Is there any particular driver of that growth?

MR. BEAR: Yeah. I think what we're seeing is the changes that are happening in sort of the larger world, liquefied natural gas, things like that are taking place within the Louisiana corridor which are very exciting. And the investment that's coming and industrializing there, is driving a lot of new growth. I mean, there's a significant amount of opportunity for Louisiana, which is great, and for the South Region of MISO. But I'm very concerned that with that load growth, we got to make sure we can match it with resources so that we can maintain reliability and serve that load that's showing up. That's our concern.

CHAIRMAN BOISSIERE: Well, I for one think that's a really good problem to have right now.

MR. BEAR: Yes, it is.

CHAIRMAN BOISSIERE: It may be a problem but it's a good problem rather than a bad problem. We're growing so well let's make sure we can grow properly is what it sounds like. I think that in -- if you'll allow me to sum it up and speak to my fellow commissioners to some degree and everyone that Louisiana has a business environment, a business climate that is welcoming and even attractive to

business investment. Commissioner Francis, you brought up a very important stat. How much money is coming in your district? How many --

COMMISSIONER FRANCIS: Eighteen billion.

CHAIRMAN BOISSIERE: Eighteen billion in investment in your district alone. I'd love to see what -- my district is very well built out, but I'd love to see what other districts in the growth around Louisiana is totally. And I think that's because we have a stable regulatory environment here and we do take this job very seriously. Good thing we have people like Mr. Bear who can explain in great detail. But the fact of the matter is I think it's important to know that Louisiana has had stable, reasonable, pragmatic, and smart regulatory environment working with our utility companies and others to come in and to provide good transmission and a smart RTO to make ourselves attractive. When other people are losing business, we are growing and that is the answer for us here. In addition to that, as we may see fluctuations in rates around the nation, around the world, even, we still have an attractive energy business climate here that will allow companies to want to invest and even to move into Louisiana for growth. We understand the problem that may cause, and -- but just like we've taken a very smart approach to getting us here, we want to, of course, take as much information as possible to help solve those issues and problems as they arise. It was important for me to actually ask you and invite you to come here today because as we are transitioning -- and we are transitioning to a kind of a newer way of providing power and lowering prices and using the marketplace as it should be used to be able to move assets and resources around and at the same time maintain reliability at a reasonable price. It is important to

hear what our RTO had to say about the changes we are coming into and approaching right now. I think it's an exciting time. I like some of the changes that are happening. I welcome some of the problems that go with it because it only -- it will only bring us other solutions while we grow in Louisiana. So I welcome your comments, I welcome your presentation, and as you know, we have a rulemaking that is coming up pretty soon and I hope that you will participate in that as well. I see your security details are nodding along with you right now.

MR. BEAR: Yes, sir.

CHAIRMAN BOISSIERE: Trust me, they take very good care of you here in Louisiana. I just want you to know.

MR. BEAR: Thank you.

CHAIRMAN BOISSIERE: The people to your left, right, and I see a few others in the room here that always -- when you're not around will speak up on behalf of MISO and RTOs here and their impact on Louisiana. I hope that the companies, the utility companies are listening, the co-ops are listening to what we're doing here today because I find it important. And I hope that other people, market participants and others, are paying attention that Louisiana wants to do the right thing. We want to bring in good, reasonable power. We want to develop and get the prices as low as possible for our ratepayers, consumers, citizens, and businesses to enjoy, but at the same time be smart and careful in our reliability. Thank you for some of the numbers and some of the information that you brought, and I hope you continue to participate in Louisiana and help us make it a great state. At this time, is there anything else?

MR. BEAR: Really appreciate the opportunity. Thank you all.

CHAIRMAN BOISSIERE: Thank you, Mr. Bear.

MR. GEARY: Thank you, Commissioners.

MS. BOWMAN: Okay. And we're ready to move on to the other discussion under Exhibit Number 8, which is a presentation by Dr. Dismukes, the Executive Director of LSU's Center for Energy Studies and it's a presentation on hydrogen as an alternative fuel source. And again, this presentation is on the Commission's website for those following along on YouTube if they would like to. David, just be sure to press the little silver button.

DR. DAVID DISMUKES: Are we on? Can y'all hear me? Good morning. Good morning, Mr. Chairman, good morning, Commissioners. I want to thank you for inviting me. My name is David Dismukes. I'm a professor and the Executive Director at the LSU Center for Energy Studies, and it's a pleasure to be here this morning. As Kathryn mentioned, what I'd like to do is give you an overview and briefing of, kind of, what's going on in the world of hydrogen and how it relates specifically to Louisiana, and how we're kind of positioned a little bit uniquely relative to other places in the country and what types of opportunities and challenges this affords for us. And I'm going to go through this PowerPoint, and I'll reference the slides as I go. So, you know, why don't we start off with just a general discussion about what hydrogen is, and if you just look on Slide 3, I've just provided a general overview of kind of, you know, the basic chemistry and the periodic table -- the elements -- the table of elements that -- in the position of where hydrogen sits. I mean, it's the lightest and most abundant element on that periodic

table. It's very abundant in nature and throughout the universe. But the one thing I want to drive home is the second point, and that is, you know, you usually never find it alone. It's not something you go out and mine or extract, much like a hydrocarbon or water or other things. You usually see it with other types of chemical compounds and elements such as hydrocarbons, so you think of methane has CH4. You've got hydrogen elements that are tied into and bonded into that carbon. And more importantly, and I think the one you're probably more familiar with is H2O, which is water. And so the real key and the challenge is splitting off that hydrogen, and the way you do it has important implications for, essentially, greenhouse gas and these decarbonization issues that Mr. Bear alluded to earlier. If we flip to Slide 4, what do we use hydrogen for? We in Louisiana and the Gulf Coast have had an abundant supply and demand and I would argue a hydrogen economy here for decades. Because of our industry, we use hydrogen for a variety of different purposes, particularly in the refining industry. We use it to meet our Tier 1 and Tier 2 gasoline and diesel standards. Those essentially remove the sulfur out of the gasoline to meet these new standards that many of you may be familiar with. We also use it in fertilizer and ammonia production, so it's very important in our economy around here and one of the reasons why we have infrastructure today that facilitates the movement of hydrogen back and forth across our industries originating as far down as New Orleans and moving over into east Texas. Hydrogen has been used and experimented with a lot with NASA as a propulsion fuel and for combustion purposes. And I'm sure many of you who may have watched the movie Apollo 13 are familiar with the space program and the use of

fuel cells which use hydrogen as a fuel input to generate electricity onboard many of the orbiters and the command modules that are used for space exploration. But the real challenge is kind of how do we wind up making this hydrogen and how do these forms of production differ and what are the implications of using hydrogen as a clean fuel on a foregoing business. Slide 5 gives you an overview of how we make hydrogen today, and for the most part hydrogen is extracted from a hydrocarbon. So most of it comes, particularly in this part of the world, from steam methane reformation, which is essentially taking methane or natural gas and breaking it apart and splitting out the hydrocarbons from that -- the hydrogen from that. And so a lot of your industrial productions -- go ahead, Commissioner Greene.

COMMISSIONER GREENE: If I could ask along the way, that would be helpful. In that process, what happens with the carbon?

DR. DISMUKES: So good question. What happens with that carbon today? That carbon gets released into the atmosphere, and the real key now, if we think about pre-combustion opportunities for capturing carbon and store it in the ground, the low hanging fruit, is to keep that from happening. So you're not combusting at that point, in that chemical reformation process, you're going to grab that CO2 and you're going to put it in the ground. So when you think about -- and some other time, maybe I can come talk about CCUS. When you think about the low-hanging opportunities in Louisiana for CCUS, there's probably about 20 million metric tons of grabbing that kind of stuff right off the top and preventing it from happening. And that's going to be an important thing when we talk about investment in the

future for new industries, you know, bolting those onto essentially those new projects.

COMMISSIONER GREENE: I'd like to take you up on that on the --

DR. DISMUKES: Okay.

COMMISSIONER GREENE: -- CCUS update another time.

DR. DISMUKES: Sure.

COMMISSIONER GREENE: If that's okay, Mr. Chairman.

DR. DISMUKES: So getting back to this. The other thing if you look at this pie chart on Slide 5, you know, we use auto reformation and other processes with petrochemicals to create this hydrogen, so 80, 90 percent of this is through auto reformation, through steam methane reformation, taking a hydrocarbon or gasification. So many of you may be familiar with the Kemper facility that was supposed to be developed by Southern Company in Mississippi. We've had various proposals for gasification projects particularly in the Lake Charles area, in Commissioner Francis' district, to take pet coke from some of the refineries and gasify that and pull off those gases, hydrogen being one of those. You take those processes in total, that's where most of the hydrogen comes from. A lot of this discussion on green hydrogen that I'm going to explain a little bit later uses a different method, which is electrolysis, which is effectively shocking water and pulling that H2O out.

COMMISSIONER GREENE: That would seem like that would be the most abundant source, especially if you could do that with salt water, but is the process as efficient -- of the processes listed, is one more efficient currently than the other?

DR. DISMUKES: So I'm going to talk about that in a little bit. I got a slide. You think about efficiencies and cost, that's where things differ; you're right. And so that's a good transition into Slide 6. Today, particularly when we think about the use of hydrogen in our transition economy, there are various different colors. And many of those techniques that I talked about before that we've used historically to produce hydrogen are on the far left of this slide, gray, brown, black hydrogen types that are using coal, natural gas, various steam or other reformation processes that are very energy intensive, have been how we've done this in the past. Today we envision using differing techniques for this and the two ones that I want to drill down on today, in particular, are blue and green hydrogen. And if you look at Slide 7, this kind of separates all the noise out and really gets to the two fundamental differences in that when you hear these discussions and you hear it reported in the paper, you'll know that the differences are in those. On the blue hydrogen side, what you're effectively doing is continuing to use the hydrocarbon resources that we've got, the steam methane technologies that we've been using for decades, you're extracting the hydrogen out of those hydrocarbons and you're using CO2 management, primarily carbon capture to grab that CO2 and put it in the ground and to clean up that process, so it's exactly what you were talking about earlier, Commissioner Greene. That is essentially what a blue process does, so it allows you to leverage the existing production base for existing hydrogen production and bolt on essentially a carbon capture piece to that as well. The green process, however, is the electrolysis process and your source of electricity in this process to make it green is usually a renewable energy resource. Most of the projects that I've

seen have been driven by solar, but you could wind as well on some of those. Yes, sir?

COMMISSIONER GREENE: So it seems -- could the blue and green hydrogen be a potential bridge for the intermittency of --

DR. DISMUKES: Yeah, you're just getting right on ahead of my presentation here. And that's exactly right. And one of the points I want to drive home, these are not either/or types of solutions.

COMMISSIONER GREENE: I promise I didn't read it and try to look smart by asking a question.

DR. DISMUKES: That's okay. But these are -- and that's the point I want to make, is these are bridges that are going to get us there. We have an abundant set of natural gas resources here in Louisiana through the Haynesville Shale. We've got extensive production processes that are very, very familiar with using steam methane reformation to extract that. If we can find carbon capture technologies that go on to that, we can clean that process up considerably and meet some of our decarbonization goals that we have for the state. If you switch onto slide eight here, what are we talking about using hydrogen for? There is actually a variety of things that we can do and it's not just limited to industrial decarbonization applications alone. On the residential and the commercial side, there are a number of local distribution companies, gas companies throughout the country that are exploring the opportunities of blending or mixing hydrogen in their gas streams to sell retail to customers and blend in there with the goal of them not noticing too much and not creating any safety hazards of burning that to clean up, essentially, the

combustion process for that. And this has become very popular in places in the mid-Atlantic and New England and the upper Midwest. But we haven't -- I haven't seen many proposals in the South, but it wouldn't surprise me that in the near future, you might see some of those before you. I want to jump down to the bottom. The other application is power generation. I know many of you are familiar with the 1803 proposal for the Magnolia plant. It will have those capabilities of burning hydrogen. Other types of, you know, of combustion -- combined cycle combustion turbines, other technologies may have the ability to take various different cuts, 5, 10, 15, 20 percent of hydrogen for combustion purposes. So if you're looking for opportunities to meet some of the intermittency challenges that Mr. Bear was talking about earlier, you're looking for some long-duration resources but you want to do that in a clean fashion and preserve some of those benefits that your thermal fleet provides you, you know, using hydrogen as a feedstock and some of that is combustion processes may be something to consider. And then in the middle is the one that is most important for us as a state, and I'll explain why in just a minute, but that is for industrial decarbonization and that is converting a lot of the applications for our industries that are up and down the river for their steam and their boiler purposes as well as their furnace and their heating purposes for combustion with hydrogen in those applications too.

COMMISSIONER FRANCIS: Dr., moving -- you're moving, usually, through a pipeline; is that right?

DR. DISMUKES: Yes, sir.

COMMISSIONER FRANCIS: Is it a different kind of pipeline than, say, a natural gas pipeline?

DR. DISMUKES: So there are different characteristics with those pipelines. We have one that traverses across the center part of the state moving east west and moving north south from Baton Rouge down to New Orleans.

COMMISSIONER FRANCIS: What's the cost of the pipeline for miles, say one of those versus a natural gas pipeline? Is it much more expensive?

DR. DISMUKES: Yeah, well, they're going to be expensive probably and I don't know, it's really going to depend on the pipe material, the diameter of the pipe, the pressures that you're operating in the pipe at, all those different things.

COMMISSIONER FRANCIS: Now back on this page where you're talking about green and blue hydrogen. While do they have windmills up here with this green hydrogen?

DR. DISMUKES: Well, you could use any kind of renewable energy resource to generate the electricity for the electrolysis process.

COMMISSIONER FRANCIS: So the windmill guys won this one on the --

DR. DISMUKES: A lot of renewable people were are excited about these opportunities because they can backup this production process through renewable resources.

COMMISSIONER FRANCIS: So we don't have much windmills here, but we've got solar. We ought to put a solar panel on our green energy logo, huh?

DR. DISMUKES: That's true, but what -- keep in mind the only thing you can do is contractually buy for that. So I can go out and contract for windmill in Oklahoma,

and from my power requirements here, and essentially virtually cover that transaction if I wanted to as well.

COMMISSIONER FRANCIS: Okay. All right.

DR. DISMUKES: So why Louisiana? I'm kind of moving to Slide 9, and let's just kind of jump on to 10. As most of you are aware, we have a clean --

CHAIRMAN BOISSIERE: Let me -- let me jump in real quick.

DR. DISMUKES: Yes, sir.

CHAIRMAN BOISSIERE: I was going to piggyback on a question from Commissioner Francis. And on Slide 8 and I hate to interrupt you, but I saw a question, I thought it was worth asking. And I hope I didn't miss any of your presentation. You have three areas of uses for hydrogen. One of them is residential and commercial heating. And how do you actually use the hydrogen in a residential setting?

DR. DISMUKES: So many local distribution companies -- so in an application like that, the utility, the gas utility would co-blend hydrogen with the gas and you might never see it. It comes into the burner tip and you burn it for your space heating requirements, water heating, appliance use. I had a friend of mine from the state that just came back from -- and they do this in Europe right now and, you know, our gas lights where you burn them, and actually the flame burns a little bit difference and the color's a little bit off. But you can use them in those kinds of applications and you blend it in there. It's not 100 percent application.

CHAIRMAN BOISSIERE: So it would be blended in with the natural gas --

DR. DISMUKES: To reduce the greenhouse gas emissions [INAUDIBLE].

CHAIRMAN BOISSIERE: So it would reduce the amount of natural gas or the effects of natural gas by -- and so interesting, very interesting.

COMMISSIONER GREENE: To follow up on that, though. So what you're saying is probably more of an industrial or a global-- a larger scale use than on a individual level?

DR. DISMUKES: Yeah, I mean you would have to have a big bulk buyer like a utility come in and do this. As an individual, you and I and aren't going to go out and get a tank of hydrogen and hook it up to the crawfish boiler. I mean, you know it's going to be something else.

CHAIRMAN BOISSIERE: Commissioner Skrmetta.

COMMISSIONER SKRMETTA: Dr. Dismukes, I just -- because I had to excuse myself for a minute, did -- have you looked into the utilization of hydrogen for hydrogen fuel cell vehicles?

DR. DISMUKES: We have not done work on that at LSU per se, but there's been a lot of work over the last two decades on fuel cells and how they would work for transportation as well as just electricity and use purposes.

COMMISSIONER SKRMETTA: So your study has been predominantly for power assessments?

DR. DISMUKES: Most of the stuff we're doing right now is on industrial de-carb. Yeah, and then is just really using it for more --

COMMISSIONER SKRMETTA: And if I missed it, did you talk about sort of the ratio of hydrogen to methane for powering power plants?

DR. DISMUKES: I have not.

COMMISSIONER SKRMETTA: Okay

DR. DISMUKES: I mean, it'll blend. I mean mostly I think utilities today are looking at gradual cuts. Many are experimenting. I think the capacity -- the cap that I've seen is 20 percent.

COMMISSIONER SKRMETTA: Okay. So you haven't got to that are you're going to get to that?

DR. DISMUKES: Well, I've kind of been talking back and forth about it.

COMMISSIONER SKRMETTA: So what is -–– what are we looking at as far as the -- it's like 20 percent hydrogen to methane?

DR. DISMUKES: Yeah. I think that's the maximum amount --

COMMISSIONER SKRMETTA: That's about the maximum for the --

DR. DISMUKES: Yeah. Right now the pilot programs that I am seeing are relatively minuscule because they are relatively small.

COMMISSIONER SKRMETTA: Did you do a study on price differential between hydrogen and methane?

DR. DISMUKES: I've got some conversion charts little bit later in the presentation.

COMMISSIONER SKRMETTA: Okay. Sorry. All right. Thank you.

DR. DISMUKES: But anyways, getting back to, you know, our goals. Everybody's familiar with the 2015 goal but I would like to highlight and remind everybody that we do have interim goals for the state that our reduction of 26 to 28 percent by 2025 and 40 to 50 percent as we move into 2030 and ultimately the big goal of being net zero by 2050. But as I'm sure many of you are familiar with, if

you look at Slide 11, unlike the rest of the United States, you know, our problems with carbon emissions or greenhouse gas emissions generally, because methane and other types of emissions are important to keep in mind as well, are going to be those that are associated with industry. That light purple chart -- that light purple line in this chart shows you the growth that that we've had in industrial greenhouse gas admissions over the last two decades or so. We're up to about 141 million metric tons and so those are going to be the real challenges that we have and it's an even bigger challenge when you think that there aren't a lot of substitutes. When you look, for instance, at the power generation sector which is in red below, we've actually seen our greenhouse gas emissions go down due to thermal efficiencies that we've seen in a lot of our utilities over the last couple of years and probably some renewable investments contributing to those reductions as well, but overall that's a 35 million ton contribution to the overall budget. You know, we need 141, 142 that we're going to have to go for to actually make those make big, big reductions to get to net zero that the governor's office has called for by 2050. Moving on to Slide 12, I won't belabor this but the real take away in the pie chart is the industrial applications are the bigger ones and that make us different than what we see in the rest the US in terms of going in and finding strategies to reduce greenhouse gas emissions and hydrogen is just one of those for that industrial sector. Looking at Slide 13, where are most of the emissions concentrated at? Well, in chemicals and refining. If you were to do that for Louisiana, that part of the pie would probably take up 80 percent of the industrial greenhouse gas emissions in the state. So those are two big target industries for future hydrogen applications

and one of the reasons why you've seen so many project announcements over the last two years or so, really, the last year, looking at investments and pilot programs and even relatively larger scale applications as well. Moving on to Slide 14, the reason why this is important, as I alluded to before, is there are a lot of renewable energy substitutes for many of these facilities to generate the heat and the steam that they need to make essentially the chemicals that we all produce here in the United States, whether it's methanol, whether it's ag chemicals like ammonia, whether it's various different oliphants you need 65 percent of all the chemistries energy of heat demand is at 900° Fahrenheit or above and there just aren't electric boilers that can hit those kind of temperatures at the scale that many of these plants need, so the bridge, as you were alluding to earlier, Commissioner Greene, is to continuing to use these boilers but retrofitting them in ways or adopting new bolt-ons to those furnaces and boilers that can actually utilize hydrogen at the burner tip there in the facilities. On Slide 15, it probably comes as no surprise that, you know, these are industries, I think as Mr. Bear mentioned earlier, we're seeing significant growth in Louisiana in our industrial sector and workers here in Louisiana get the benefits of those expanded production opportunities. Our energy-based manufacturing wages have been growing at rates that are faster than just the general manufacturing wages and those in turn are growing at rates that are faster than overall statewide averages. So if we're looking at the economic implications of this, wages are important. Right now I would say probably around 46 percent of all the wages in our manufacturing sector are paid by those two industries so we have to find solutions to that as we move forward. Why don't we turn to Slide 18

and I think the starts to address some of the issues that Commissioner Skrmetta raised earlier about kind of cost differentials. And I've got two sets of analyses that are kind of highlighted in red. Right now, if you're looking at steam methane reformation with carbon capture, with and without. You know, with carbon capture you're looking at differences between 2 to 2.27 per kilogram of hydrogen production. That translates to somewhere around $17 in MMBtu on the gas side. So gas today is 6. You know that's 17.

COMMISSIONER SKRMETTA: Could you speak a little closer to the mic [INAUDIBLE].

DR. DISMUKES: Yeah, I guess today is a what 6.50, $7.00? This is 16, 17 so it'll give you an idea of the order of magnitude difference in terms of what it cost to essentially produce that hydrogen through existing production techniques.

COMMISSIONER SKRMETTA: So it's like $10 more?

DR. DISMUKES: Yeah.

COMMISSIONER SKRMETTA: Okay. So it [INAUDIBLE].

DR. DISMUKES: Than methane, like you were asking earlier, yeah. Now if you look to the far right and you're looking at the renewable applications, those numbers are considerably in excess of around $10 per kilogram of production of hydrogen. Those are going to be numbers that are on a gas equivalent basis, they're going to be around $77. So again, the costs are there, are very significant. That's not to suggest that we can't hit scale economies. I think many industries now are looking at these opportunities because they think they can do better than that and they think through scale and scope, we can start to drive those numbers down on

the green side but it's a ways before we get to that in terms of those differences, right. And again, one of the things to think about that I don't think is considered often, if you look at Slide 19, is all of the additional support infrastructure. So Commissioner Francis, you were asking about pipelines. Underground storage is going to be another issue that you have to think about. If you're using power applications, you're going to have to use the hydrogen much like you use gas. We use gas and reservoir and soft storage to meet those cycling and requirements for those resources. And so if you think about a 5 percent blend alone, you're going to need 19 more facilities or 62 more salt caverns than we have right now. And today we've got somewhere around 37 of those facilities, so you're looking at a significant increase. If you were to go up to a 20 percent blend, you'd need 85 more facilities. Not caverns, but facilities, which would be about 278 caverns, individual caverns. So it would be an order of magnitude pump up in supporting infrastructure that goes along with this that would need to be considered. And you think about where those salt caverns are, the opportunity for using various different areas for storage, it's going to be here on the Gulf Coast it's not going to be up in New England or other places.

COMMISSIONER FRANCIS: Yeah, they're mostly in my area, so.

DR. DISMUKES: That's right. You're right.

COMMISSIONER FRANCIS: Let me ask you about the -- if we're going to produce more hydrogen, we're going to have to have more pipelines to move it and so once you have a hydrogen pipeline established, I mean, is it possible to maybe

run some natural gas through that same pipeline if you needed to or some CO2 through that same pipeline?

DR. DISMUKES: I don't think so. I don't think it works like a crude or a liquids pipe where you can kind of back fill in those different product streams. You're either on one or the other.

COMMISSIONER FRANCIS: You wouldn't be able to use any other products?

DR. DISMUKES: I don't think so. I mean, they operate at completely different pressures than [INAUDIBLE].

COMMISSIONER FRANCIS: You know, in a lot of these pipelines, they'll run a big batch of like gasoline and then maybe natural gas in the same line.

DR. DISMUKES: Right, right. Colonial does that, you can [INAUDIBLE] same plug, you can run that through another plug.

COMMISSIONER FRANCIS: But you think a --

DR. DISMUKES: No.

COMMISSIONER FRANCIS: So that's going to be a little more cost to move it too then. Okay.

DR. DISMUKES: And there have been some discussions about, well, can we repurpose some of our existing infrastructure to move this. There may be some niche applications where you do that, but you're probably going to have to be operating at lower pressures because those -- there are big pressure differentials in how those move, and I don't want to get into the physics or the chemistry because I'm not real good at that or I'd be real doctor, but -- as my father-in-law used to say, but, you know, you're going to wind up seeing phase shifts in how they --

because they'll turn into a liquid at some point when you operate at those real high pressures.

COMMISSIONER FRANCIS: That's good. What's a pressure -- what kind of pressure --

DR. DISMUKES: I think they're somewhere around 2,000.

COMMISSIONER FRANCIS: A thousand pound?

DR. DISMUKES: Two thousand.

COMMISSIONER FRANCIS: Two thousand, wow. So natural gas is probably --

DR. DISMUKES: You're at 800 to 1,000 for natural gas.

COMMISSIONER FRANCIS: Natural gas runs 700, 800 huh? So you got 2,000 pounds pipeline. Okay. All right.

DR. DISMUKES: CO2 also runs about those kinds of pressures, too.

COMMISSIONER FRANCIS: CO2 is how much?

DR. DISMUKES: About 2,000, 2,200.

COMMISSIONER FRANCIS: Oh, it's at 2,000 also? Okay. All right. Good.

DR. DISMUKES: On the next slide --

CHAIRMAN BOISSIERE: Wait one moment. Commissioner Skrmetta has a follow up.

DR. DISMUKES: Okay.

COMMISSIONER SKRMETTA: Who are the top producers of hydrogen in the state at this time?

DR. DISMUKES: I don't have a specific breakdown but Air Products, Air Liquide are going to be your industrial producers that have it. And then most of your refineries will have reformers on the site, like Exxon, Shell, et cetera, that make the hydrogen there for the refineries directly. They'll buy some and then they'll produce some on their own.

COMMISSIONER SKRMETTA: Have you looked into interactivity like with, I guess, particularly Entergy on their sort of long-term plans to develop pink hydrogen utilizing electrolysis with the nuclear plants?

DR. DISMUKES: The nuclear? So we have not. I remember back in the old days there was some discussions and we were working with them when -- I don't even remember, back during the "golden age" of nuclear when we have that brief window in 2005, '06, '07, and '08, and that was one of the opportunities when we were looking at those new generation of power plants, but that discussion, you know, hasn't gone anywhere since then because I don't know of anybody building new power plants. We need the power plants for the load now. I don't know that anybody would want to switch those out for the hydrogen.

COMMISSIONER SKRMETTA: Because the reason I'm -- I ask the question about pink hydrogen is simply for its value as an export to offset the bottom line where it could reduce overall rate structure for ratepayers by just having another thing on the invoice where Entergy sells it and reduces the overall costs come back for the ratepayers, so that's the reason I brought up the pink hydrogen.

DR. DISMUKES: Yeah, and we'll see with the next generation of these small modular reactors, but I will defer to Entergy on that and let them kind of explain

what their interests are in those areas. I think it would be a very big capital investment for doing something like that in the near term for hydrogen alone. The other thing I want to point out is, as I alluded to earlier, we do have a relatively burgeoning hydrogen economy. We have for decades here. We have a large number of buyers, we have a large numbers of sellers. We don't have any marketers or other institutions, but I think as these hydrogen hubs as they've been envisioned to be popping up over the next five years or so, those will soon follow and you can see hydrogen traded much like natural gas and you can see pipelines being used for common carriers much like we do for natural gas as well. And so, you know, this is an area that has a lot of opportunity for advancing essentially those clean hydrogen requirements. On Slide 21, this also gets back to some of the discussion that Mr. Bear had about the new investments that are in this region. We're looking at considerable, I think 145 billion or so, in new investment. This just came out in our Gulf Coast Energy Outlook yesterday and one of the things that I want to drive home is, you know, close to 23 billion of that is in Louisiana on these transition investments out of a gulf coast total of 29 billion. So there's a lot of new interest in investment in these areas. This is going to create new opportunities for industrial load and the preservation of existing load that you heard Mr. Bear talk about, but it also represents a new opportunity for industry to expand into some of the things that they are already doing right now to reduce carbon emissions. Lastly, on Slide 22, the last thing I just want to highlight are these hydrogen hub ideas that -- and I think, Commissioner Greene, you had a specific interest in this. Various states have been lining up to seek federal funding. There's about 8 billion in the Infrastructure,

Investment, and Jobs Act, or the Infrastructure Bill, to support hydrogen hubs. Louisiana is part of a three-state coalition, it's called the HALO project. We're working with Arkansas and Oklahoma. We just submitted our concept paper to DOE within the last week or so. There's a lot of -- I would have liked to have been able to give you a lot of definitions of what's going in it, but from what -- a lot of its confidential and you can't see it.

COMMISSIONER GREENE: Just -- can I ask one question?

DR. DISMUKES: Uh-huh.

COMMISSIONER GREENE: Are we the fastest horse in the race so far?

DR. DISMUKES: I would argue we are. If you start looking at these things that I've been talking about in terms of what makes a hydrogen economy, large buyers and sellers, infrastructure, familiarity with the permitting, all of these things, I -- so if you look, Commissioner Greene, they're going to review the concept papers, they're going to make a decision by December. I'd be highly surprised if we don't get on the short list. Then we have to make a full proposal and then they'll make awards, I think early next year. From what I understand our guys are already working on the full proposal now because we all expect to get into that short list.

COMMISSIONER GREENE: Eight billion, you mentioned the gap between -- a $10 gap. Can you keep us posted on how much that might bridge that as the constants fall?

DR. DISMUKES: Yeah. It's hard for me to say because I don't know kind of what they're envisioning. This is going to be some -- I suspect and I don't know -

- I do know some general parameters, it, you know, would be a joint, public, private --

COMMISSIONER GREENE: Partnership.

DR. DISMUKES: -- partnership. Industry's going to pony up some matching dollars, I'm sure the state's going to either put up dollars or matching in kind. Just all kinds of things. It's kind of really hard to say, but I'm sure 8 billion will go a long way in facilitating that.

COMMISSIONER GREENE: You know, one of the things that's important to me is it seems like we're at a unique point where it's -- we have the ability for a different way to do these things where the people that want to provide this can also have some skin in the game.

DR. DISMUKES: Right.

COMMISSIONER GREENE: And that could help discount some of the gap costs as well.

DR. DISMUKES: Right. It could. And the other thing that's important in all this, I don't want to oversell this in a big way, is in the role for government in this is in addition -- it's not necessarily an issue of throwing more cash on the table, but helping to de-risk some of these investments too by backstopping or creating opportunities to access on state lands, et cetera, for storage and other things that we can do here in Louisiana that might facilitate those developments. So in conclusion, I know I've gone a little long this morning, but as you know, those carbon emissions are high and we've got to find a way to reduce those. That's where our real big challenge is going to be, it's where our growth has been, as you heard from Mr.

Bear, it's where our future opportunities for economic expansion are going to be. Even Commissioner Francis noted the billions that are in his own service territory. Commissioner Boissiere, there's billions in yours as well. And if we want to continue to expand that, that economic footprint, we're going to have to find ways to do it using a variety of different methods. Hydrogen is just one, renewables is going to be a part of that, CCUS, a variety of other things that we probably even thought about are going to have to contribute to that as well. Do keep in mind that it's not a simple issue of just producing the commodity itself, but we've got supporting infrastructure that'll have to be developed. And do keep in mind, I do want to point out that, and I hope you appreciate from all of this, is that as we think about this bridge that Commissioner Greene talked about, carbon capture is going to be a big piece of that because we can't use these blue applications, capture that carbon, and sequester it. We're probably not going to get to the ultimate goal where we transition most of this stuff to green applications to begin with. So with that I'll -- if y'all have questions, I'm more than happy to answer them.

CHAIRMAN BOISSIERE: Commissioner Francis, you had --

COMMISSIONER FRANCIS: [INAUDIBLE].

CHAIRMAN BOISSIERE: Yes. Yes.

COMMISSIONER FRANCIS: In the future, as we build carbon, build these hydrogen plants, would we have a few large plants or would we have several small plants, would you say, would you guess?

DR. DISMUKES: I'd -- probably combinations of both. We have smaller one -- we have kind of combinations of them today. You have big industrial gas producers

that make hydrogen at centralized locations and then many of your refineries have smaller ones to bridge in some of their requirements on site.

COMMISSIONER FRANCIS: The plants we have today, about how many employees would it take to run a hydrogen plant?

DR. DISMUKES: I don't know. I mean, I will admit that these are capital intensive investments so you don't need doodles of jobs at them, they're not like an automotive manufacturing plants, but they are important jobs and they're probably high paying, they'll probably be six figure jobs.

COMMISSIONER FRANCIS: Oh, good. All right. Thank you.

CHAIRMAN BOISSIERE: Commissioner Greene. I'm sorry.

COMMISSIONER SKRMETTA: One quick question.

CHAIRMAN BOISSIERE: Commissioner Skrmetta.

COMMISSIONER SKRMETTA: When you -- have you studied the differential for when you burn methane and you burn hydrogen, the production of quantification of CO2? How much CO2 is produced [INAUDIBLE] --

DR. DISMUKES: Yeah, I mean, there are no greenhouse gas emissions --

COMMISSIONER SKRMETTA: I'm sorry, you have to speak closer to the mic.

DR. DISMUKES: There aren't any with hydrogen, there are some -- I think some nitrous oxide.

COMMISSIONER SKRMETTA: So hydrogen -- I mean, hydrogen produces no carbon dioxide?

DR. DISMUKES: That's the goal of using it, right?

COMMISSIONER SKRMETTA: So it's all nitrogen?

DR. DISMUKES: Yeah.

COMMISSIONER SKRMETTA: Okay. Even though there's no nitrogen in hydrogen?

DR. DISMUKES: Yeah, I don't know -- I don't know the exact -- there are no CO2 emissions associated with that, that's why we're looking at that.

COMMISSIONER SKRMETTA: All right. Because I know hydrogen, if you -- normally if you combust it, it creates water but it has to have another byproduct, so I just -- I imagine it has to have some differential, I just didn't know if it --

DR. DISMUKES: Yeah, I'm an economist, I'm not a physicist so I can't answer that.

COMMISSIONER SKRMETTA: Okay. All right. Thanks. I got it.

CHAIRMAN BOISSIERE: Commissioner Greene.

COMMISSIONER GREENE: Yeah. Thank you for -- this was very educational and we'd like for you to continue to keep us posted. One of the things that I'm very grateful for, and I don't know how much the schools interact with each other, but thanks to LSU and --

DR. DISMUKES: Yeah, I want to thank you for letting me come up here without ULL. I appreciate that.

COMMISSIONER GREENE: Well, and I know that ULL does a lot.

DR. DISMUKES: They do. And look, Mark Zappi's group, he's a great guy. I think y'all are going to extend an opportunity to him. Mark does a lot of wonderful amazing things there, and --

COMMISSIONER GREENE: I think Tulane, UNO do as well, and I like this because this is an area we don't have to hire -- I know sometimes we do hire y'all, but this is part of an educational expedition as well, so to incorporate that with governance, I think, is huge.

DR. DISMUKES: So yeah, do rest assured, we are all interacting. We have -- I talk to Mark all the time, we do work with the other universities. This HALO project, we're all standing in a support capacity to the state of Louisiana in that as well, all of us are, so it is a multi-university initiative on those things.

COMMISSIONER GREENE: Well, it's just great to have the educational community in this fight with us, so.

DR. DISMUKES: Yeah. And look, it's one of the more exciting things that we're seeing on campus right now, so.

COMMISSIONER GREENE: And let us know if we can ever help with the students, you know, come and visit with them, create that energy.

DR. DISMUKES: Yeah. Yeah. Yeah.

CHAIRMAN BOISSIERE: Everyone else? All done. Well, thank you Mr. Dismukes for bringing a great presentation on hydrogen to the Louisiana Public Service Commission, as we constantly try to find solutions to providing energy and our resources here in Louisiana. Great.

DR. DISMUKES: Okay. Thank you for having me. I appreciate it.

CHAIRMAN BOISSIERE: Thank you very much.

MS. BOWMAN: We do have one request for comment on this item and it's Ms. Logan Burke with the Alliance for Affordable Energy. So I don't know if Logan's still here -- yeah.

MS. LOGAN BURKE: I'd just like to decline and I will follow up. I know the --

SECRETARY FREY: Come talk into the mic [INAUDIBLE].

MS. BOWMAN: Yeah, I mean, just so it's on the record, please.

MS. BURKE: Thank you. Logan Burke with the Alliance for Affordable Energy. I'm going to follow up, there were some wonderful questions that were asked here today and I'm looking forward to following up, once I actually get to see the presentation that was given, with some perspectives from the Alliance. What's that?

COMMISSIONER SKRMETTA: [INAUDIBLE].

MS. BURKE: Thank you.

CHAIRMAN BOISSIERE: Are you sure you don't want to ask a question before you leave?

MS. BURKE: I'm certain.

CHAIRMAN BOISSIERE: Thank you. Okay.

MS. BOWMAN: Thank you, Logan.

CHAIRMAN BOISSIERE: Next, please.

MS. BOWMAN: Okay.

CHAIRMAN BOISSIERE: Thank you, Logan.

MS. BOWMAN: Then we will move on to Exhibit Number 2, which is Docket Number T-36373. This is the Commission versus Louisiana Environmental Transportation on an alleged violation of Louisiana Revised Statutes for failure to pay the state proper fees for the year 2020, for the inspection, control, and supervision of its business services and rates, authorized in Common Carrier Certificate Numbers 8314 and 8315 pursuant to General Order dated November 22, 2011. This is a discussion and possible vote pursuant to a Rule 57 on affidavit and stipulation executed by the carrier, so it will need two votes. As a result of a routine review of the Louisiana Department of Revenue's inspection and supervision fee logs by Audit Staff, a citation was issued to Louisiana Environmental Transportation on June 7, 2022 based on the aforementioned allegations and violations. In response to the citation, the owner of Louisiana Environmental Transportation executed an affidavit and stipulation on behalf of the company admitting to the violations and in that affidavit and stipulation, the company agreed to an imposition of a $1,000 fine with $500 being suspended contingent on the following conditions: That the company not violate Title 45:1177, as amended, for three years; that the company pay all outstanding inspection and supervision fees for the year of 2020 to the Department of Revenue and provide copies of proof of payments to the Commission no later than August 29, 2022; and failure to comply with any of these will result in the $500 suspended portion of the fine being due immediately. Therefore, Staff recommends that the Commission: 1) Exercise its original and primary jurisdiction under Rule 57 to consider the affidavit and

stipulation; and 2) Accept the affidavit and stipulation executed on August 1, 2022 for fines and fees totaling $525.

COMMISSIONER SKRMETTA: Move to bring the matter up under Rule 57.

COMMISSIONER FRANCIS: Second.

CHAIRMAN BOISSIERE: Moved by Commissioner Skrmetta, seconded by Commissioner Francis to bring the item under Rule 57.

COMMISSIONER FRANCIS: Move to accept Staff recommendation.

COMMISSIONER SKRMETTA: Second.

CHAIRMAN BOISSIERE: Moved by Commissioner Francis, second by Commissioner Skrmetta to accept Staff recommendation. Any opposition? [NONE HEARD] Hearing none, so ordered. Next.

MS. BOWMAN: Exhibit Number 3 is Docket Number T-36390. It's the Commission versus Rodney Dupre doing business as Rodney's Towing Services. It's an alleged violation of Revised Statutes for failure to pay to the state proper fees for the years 2016 through 2020 for its ISF of business services and rates authorized in Common Carrier Number 7922 pursuant to General Order dated November 22, 2011. It's also a discussion and possible vote pursuant to Rule 57 on an affidavit and stipulation executed by the carrier, so it will need two votes. As a result of a routine review of the Department of Revenue's logs by Audit Staff, a citation was issued to Rodney Dupre doing business as Rodney Towing Services on June 15, 2022 based on the aforementioned allegations and violations. In response to the citation, the owner of the company executed an affidavit and stipulation on behalf of the company admitting to violating all violations alleged in

the citation in the docket. In the affidavit and stipulation, the company agreed to the imposition of a $1,000 fine with $500 being suspended contingent on the following conditions: The company not violate Title 45:1177, as amended, for three years; that the company pay all outstanding inspection and supervision fees for the years 2016 through 2020 pursuant to the carrier's payment agreement with Department of Revenue and showing proof of payments to the Commission; and three, that all fines and fees due to the Commission by November 3, 2022. Staff recommends that the Commission: 1) Exercise its original and primary jurisdiction under Rule 57 to consider the affidavit and stipulation; and 2) Accept the affidavit and stipulation executed on October 5, 2022 for fines and fees totaling $525.

COMMISSIONER SKRMETTA: Move to bring the matter up under Rule 57.

COMMISSIONER FRANCIS: Second.

CHAIRMAN BOISSIERE: Moved by Commissioner Skrmetta, second by Commissioner Francis to hear the matter under Rule 57.

COMMISSIONER FRANCIS: Move to accept the Staff recommendation.

COMMISSIONER SKRMETTA: Second.

CHAIRMAN BOISSIERE: And the same. Moved by Commissioner Francis and second by Commissioner --

COMMISSIONER SKRMETTA: Skrmetta.

CHAIRMAN BOISSIERE: -- Skrmetta -- I was waiting for that second -- to accept Staff recommendation. Any opposition? [NONE HEARD] Hearing none, so ordered. Next, please.

MS. BOWMAN: Exhibit Number 4 is Docket Number S-36479. This is American Broadband Holding Company, Cameron Communications, Cameron Telephone Company, Elizabeth Telephone Company, and LBH request for a letter of non-opposition to issuance to guarantees a pledge of assets as security in connection with debt incurrence by American Broadband Holding Company. It's a discussion and possible vote on Staff report and recommendation. On July 1, 2022 American Broadband Holding Company, together with Cameron Communications, Cameron Telephone, Elizabeth Telephone, and LBH, jointly filed the above captioned request pursuant to Commission General Order dated March 18, 1994, as amended, seeking approval and/or non-opposition of the Commission to the regulated subsidiaries providing guarantees, and granting security interests in their respective assets and mortgages on their real property, in connection with financing obtained by the regulated subsidiaries' indirect parent, American Broadband, as borrower, and all of its direct and indirect subsidiaries as guarantors. This matter was published in the Commission's Official Bulletin and no interventions were received. American Broadband, as a borrower, is a party to a credit agreement, dated June 13, 2022, which includes incurrence of a senior secured first lien term loan facility in the amount of $250 million, a senior secured delayed draw term loan facility in an aggregate principal of $75 million, and a senior secured first lien revolving credit facility in an aggregate principal of $50 million. The proceeds from the initial term loans have been used by American Broadband to replace and repay in full previously existing indebtedness of American Broadband and its subsidiaries held by CoBank to fund general corporate activities, pay fees,

expenses, and other transaction costs associated with the credit facilities. The proceeds from the delayed draw down term loans will be used to finance capital expenditures, acquisitions, and investments permitted by the credit agreement; and the proceeds from the revolving credit facility will be used for general corporate purposes. On November 4, 2022 Staff filed its Staff report and recommendation on the request. Staff had reviewed the request and exhibits included part thereof, and detailed information regarding the credit facility, responses to data requests provided by applicants, and responses to the 18 factors set forth in Commission's General Order. As such, Staff recommends that the Commission accept the Staff report and recommendation filed into the record on November 4, 2022, thereby expressing its non-opposition to the proposed transaction, subject to the conditions stated therein.

COMMISSIONER GREENE: Motion to accept Staff recommendation.

COMMISSIONER SKRMETTA: Second.

CHAIRMAN BOISSIERE: Moved by Commissioner Greene, second by Commissioner Skrmetta to accept Staff recommendation. Hearing no opposition, so ordered. Next.

MS. BOWMAN: Exhibit Number 5 is Docket Number S-36480. This is LBH doing business as Cameron Communications' application for expansion of Eligible Telecommunications Carrier designation for Lifeline-Only. It's a discussion and possible vote on Staff report and recommendation. On June 28, 2022, LBH formally doing business as Cameron Communications also doing business as Fastwyre Broadband filed a request Commission seeking expansion of its

designation as an ETC. LBH is requesting expansion of its ETC designation for the purpose of participating in federal and state low-income Lifeline and Affordable Connectivity Programs to be allowed to offer federal and state Lifeline benefits to eligible and qualifying customers on a statewide basis. Notice of the company's request was published in the Commission's Bulletin, with no interventions received. LBH is a LLC in Louisiana and is a wholly-owned subsidiary of Cameron Communications. The company is currently a certificated competitive access and local exchange carrier and provides competitive access, local exchange, interexchange long distance and broadband services to customers in Calcasieu and Cameron Parishes. The Commission previously designated LBH as an ETC in the non-rural portion of its services area in 2006. Pursuant to Section 214(e) of the Act, State commissions are given the authority to designate ETCs to those common carriers that meet certain federal service requirements and whose designation would be consistent with the public interest, convenience, and necessity. Consistent with its authority under federal law, the Commission issued its ETC General Order, which created a list of public interest criteria to be applied on a case-specific basis to all requests for ETC designation in areas served by rural telephone carriers. The company certified that it will offer the services supported by federal universal service support mechanisms either using its own facilities or a combination therein of its own facilities and resale of another carrier's services and that it will advertise the availability of such services and the charges therefor using media of general distribution. On October 26, 2022, Staff filed its report and recommendation on the company's petition into the record of this proceeding and found that the

company had demonstrated it would meet the requirements of the act, applicable FCC regulations, and the ETC General Order. Therein, Staff also found that designation of the company as an ETC in the designated services areas for the purpose of receiving Lifeline support was in the public interest. Therefore, Staff recommends that the Commission accept the Staff report and recommendation filed into the record on October 26, 2022, and grant the company's petition to be designated as an ETC in the designated service areas for the limited purpose of obtaining low-income Lifeline support, subject to the conditions contained in Staff's report and recommendation.

COMMISSIONER GREENE: Motion to accept Staff recommendation.

COMMISSIONER SKRMETTA: Second.

CHAIRMAN BOISSIERE: Moved by Commissioner Greene, second by Commissioner Skrmetta to accept Staff recommendation. Any opposition? [NONE HEARD] Hearing none, so ordered. Next, please.

MS. BOWMAN: Exhibit Number 6 is Docket Number S-36519. This is Magnolia Water Utility Operating Company's request for a letter of non-opposition to enter into loan agreements with CoBank, ACB. It's a discussion and possible vote on Staff's report and recommendation. On August 30, 2022, Magnolia filed the above-captioned request pursuant to the Commission's General Order dated November 13, 1996 and requests that the Commission approve Magnolia to enter into multiple advance, senior secured, amortizing term loans with CoBank, ACB for the purpose of funding capital projects, repaying intercompany advances and closing costs, and balancing Magnolia's capital structure in compliance with Commission Order

Number U-35822. The request was published in the Commission's Bulletin with no interventions. Magnolia affirms that the request to issue a $30 million to $50 million advance, senior secured, amortized term loan is necessary to fill the capital funding needs of projects, repay intercompany advances and closing costs, and to come into compliance with Commission Order Number U-35822. The rate anticipated by Magnolia for the credit facility is dependent upon a set of options the company would have as indicated by the credit facility. Magnolia expects to take a first draw of 30 million with options of additional up to 20 million prior to December 31, 2023 and the term of the credit facility would be for a period of 20 years from the closing date. Magnolia expects that the principal and interest expenses associated with the credit facility will not be felt by customers until September 2023, and only if closing occurs and financing is authorized in December 2022, so that it would be included in Magnolia's December 31, 2022 formula rate plan filing. Magnolia expects that just interest payments would be made in 2023 and principal and interest payments would start in 2024. And Magnolia currently does not have any existing long-term debt and, therefore, no current required covenants to maintain. Staff filed its report and recommendation on November 3, 2022 finding the request is in the public interest and recommended that the Commission approve the request subject to the conditions -- excuse me, subject to the terms and conditions stated therein. Staff recommends that the Commission accept the Staff report and recommendation filed into the record of the docket on November 3, 2022, expressing its non-opposition to Magnolia's

request subject to the conditions stated therein. And I do have a motion on behalf of Commissioner Skrmetta.

COMMISSIONER SKRMETTA: That is my motion.

MS. BOWMAN: Commissioner Skrmetta moves that Staff's report and recommendation in Docket S-36519 be accepted in its entirety and that the Commission authorize and order Magnolia Water Utility Operating Company enter into a credit facility with CoBank, ACB. Commissioner Skrmetta further moves that this order go into effect immediately pursuant to Rule 44 of the Commission's rules of practice and procedure.

CHAIRMAN BOISSIERE: Moved by Commissioner Skrmetta and second by the Chair. Any opposition? [NONE HEARD] Hearing none, so ordered. Next item, please.

MS. BOWMAN: Exhibit Number 7 is Docket Number U-36105. This is Entergy's application for certification to deploy natural gas-fired distributed generation and authorization to implement Rider UODG. It's a discussion and possible vote on a budget increase for UPC due to an expansion of scope. At the September 22, 2021 B&E, United Professionals Company was retained to assist the Commission with Docket Number U-36105. A stipulated settlement was approved at the September 2022 B&E and the settlement included annual filing requirements, which was not contemplated in the original scope of services. UPC's original budget was 96,000 in fees and 3,000 in expenses and UPC, while assisting the Commission, has approximately $20,000 remaining in the originally approved budget. While possible the remaining budget is enough to review the annual filings,

it is impossible to know the exact extent of the services until after the first filing is made. Therefore, Staff and UPC discussed a budget increase to ensure services could be rendered due to the expansion of scope for the annual filings in a timely manner. Therefore, UPC provided a proposed additional budget of 20,000 in fees and 2,000 in expenses. UPC will maintain its currently approved hourly rates and will only bill for work performed; therefore, the budget will only be expended if services are found to be warranted. Based on the scope expansion, Staff recommends that the Commission accept UPC's budget in the amount of $20,000 in fees and 2,000 in expenses.

COMMISSIONER GREENE: Motion to accept Staff recommendation.

COMMISSIONER SKRMETTA: Second.

CHAIRMAN BOISSIERE: Moved by Commissioner Greene, second by Commissioner Skrmetta to accept Staff recommendation. No opposition. Next item, please.

MS. BOWMAN: So Exhibit Number 8 is the reports, resolutions, discussions. We have already handled both the items under discussions but there are two vote ratifications.

SECRETARY FREY: And there is -- I think Commissioner Skrmetta has another discussion item, too, for an issue that came up.

COMMISSIONER SKRMETTA: In addition to the items under Exhibit 8, the letter that I've asked to be issued to be brought up under Exhibit 8, after you go through the list.

SECRETARY FREY: Okay.

COMMISSIONER SKRMETTA: Wherever you want to bring it up.

SECRETARY FREY: You can bring it up now because there was only discussion, but we're about to do the votes.

COMMISSIONER SKRMETTA: Okay. Go ahead.

SECRETARY FREY: Okay. So -- and I'm going to read what -- wait, let me get my text from you. Okay. So there's some proposed legislation that I think we discussed a couple of months ago to potentially usurp state transmission jurisdiction, being considered on the congressional level. Last time that happened, we didn't have a meeting but I know that some of you sent letters to the -- particular to our senators urging them to oppose that information. In discussing this with Commissioner Skrmetta, he's suggesting we send a letter to the two senators as well as the Attorney General urging them to protect the Commission's jurisdiction under the Constitution to maintain authority over transmission citing. I think I summarized that. And this is an issue that came up at NARUC, this week, I believe.

COMMISSIONER SKRMETTA: Yes. Issues came up to identify an urgency on this during the Washington Action Committee at NARUC that identified that there's going to be a secondary push during the congress to readdress this issue, and we want to make our senators and our Attorney General aware and I think it's important that we issue a letter, so appreciate your support. And the letter can be signed by the Executive Secretary.

SECRETARY FREY: Yes. And the letter will essentially say, if we issued such a letter, requesting Senator Kennedy's and Cassidy and the AG opposing any attempt to reintroduce transmission permitting legislation at the federal level and

that they preserve the State's Constitutional 10th Amendment rights over transmission.

CHAIRMAN BOISSIERE: Okay. Any other discussion? [NONE HEARD] All right. Anything else on this item under Number 8.

MS. BOWMAN: We have two votes for ratification under Exhibit 8.

CHAIRMAN BOISSIERE: All right. I'm sorry.

SECRETARY FREY: We have two votes.

CHAIRMAN BOISSIERE: Go ahead. I didn't hear you.

COMMISSIONER GREENE: Motion to take the item up under 57.

MS. BOWMAN: No, we're good right now. We don't need an Item 57.

COMMISSIONER GREENE: What are you referring to we need two motions for?

MS. BOWMAN: No, we have two votes. Vote ratifications.

SECRETARY FREY: Two votes, an ERSC and a --

CHAIRMAN BOISSIERE: Who's going to read the in re on that?

MS. BOWMAN: I will read the in re for you.

CHAIRMAN BOISSIERE: Just waiting for you. Yeah.

MS. BOWMAN: So there's a discussion and possible vote to ratify votes taken by Vice Chairman Francis acting as the Commission's representative on the Regional State Committee of the Southwest Power Pool. On October 24, 2022, Vice Chairman Francis, as the Commission's representative of the RSC for SPP voted on four items in its quarterly meeting. Staff followed the protocol set forth in Special Order 17-2019 to consult with the Executive Secretary and Chairman

and to make a recommendation to Vice Chairman Francis prior to the votes. The protocols also require that those votes taken be ratified at a following B&E. Staff recommends that the Commission ratify Vice Chairman Francis' votes taken on October 24, 2022 as the Commission's representative to the SPP RSC. And Vice Chairman Francis, you will abstain from these votes, correct?

CHAIRMAN BOISSIERE: Yeah.

MS. BOWMAN: Yes.

CHAIRMAN BOISSIERE: Yes, he's -- he'll abstain from his vote, of course. Right. Okay. So --

COMMISSIONER SKRMETTA: Move to ratify.

CHAIRMAN BOISSIERE: Motion to ratify --

COMMISSIONER GREENE: Second.

CHAIRMAN BOISSIERE: -- by Commissioner Skrmetta, second by Commissioner Greene, with an abstention by Commissioner Francis. No opposition. So ordered. Next item.

MS. BOWMAN: So we also have a discussion and possible vote to ratify votes taken by Commissioner Greene acting as the Commission's representative on the Board of Directors of the Organization of MISO States. On October 13, 2022, Commissioner Greene, as the Commission's representative on OMS Board of Directors voted on one item at the OMS Board Meeting. Staff followed the protocol set forth in Special Order 17-2019 to consult with the Executive Secretary and the Chairman and to make a recommendation to Commissioner Greene prior to the vote. The protocols also require that the votes taken be ratified at a follow B&E.

Staff recommends that the Commission ratify Commissioner Greene's votes taken on October 13, 2022 supporting the OMS comments as the Louisiana Public Service Commission representative to the OMS Board of Directors. And Commissioner Greene needs to abstain.

COMMISSIONER GREENE: I'm abstaining.

COMMISSIONER SKRMETTA: Move to ratify the vote.

COMMISSIONER FRANCIS: Second.

CHAIRMAN BOISSIERE: Moved by Commissioner Skrmetta, second by Commissioner Francis, with an abstention by Commissioner Greene. No opposition. So ordered. Next, please.

MS. BOWMAN: Exhibit Number 9 is Docket Number --

CHAIRMAN BOISSIERE: Wait, wait, wait, wait for a moment.

MS. BOWMAN: I'm sorry.

CHAIRMAN BOISSIERE: Let me ask you a question.

MS. BOWMAN: Yes, sir.

CHAIRMAN BOISSIERE: It's probably too soon to ratify the ERSC that happened yesterday, right?

SECRETARY FREY: Yes.

MS. BOWMAN: Yes.

CHAIRMAN BOISSIERE: Okay. So be on the next one. Thank you.

MS. BOWMAN: Yes. Exhibit Number 9 is Docket Number S-35994. This is HWJ Legacy doing business as Two Men and A Truck's application to increase tariff rates for Common Carrier Certificate Number 7644. It's a discussion and

possible vote pursuant to Rule 57 on a uncontested stipulated settlement, so this will need two votes. On May 14, 2021, HWJ Legacy doing business as Two Men and A Truck Baton Rouge filed an application with the Commission requesting authorization to increase its tariff rates pursuant to Commission General Order dated October 2, 2012. Notice of the application was published in the Commission's Official Bulletin and no interventions were filed. Following discovery on the application, Staff filed its report and recommendation on June 14, 2022. Subsequently, counsel for HWJ filed into the record a request that Staff allow an immediate 10 percent rate increase with the intention to enter into negotiations regarding any additional increases. Staff filed a letter allowing the company's request and parties entered into settlement negotiations regarding an additional rate increase. HWJ and Commission Staff have now reached an agreement, and executed an uncontested stipulated settlement, the major term of which is as follows: HWJ will be authorized an additional increase to some of its rates and charges as prescribed in its current tariff on file with the Commission incorporating Staff's recommended 10 percent increase and mirroring rates approved in Docket Number S-35993 by the Commission for a similar carrier, BJB Group doing business Two Men and a Truck. Staff recommends that: 1) The Commission exercise its original and primary jurisdiction under Rule 57 to consider the uncontested stipulated settlement; and 2) Accept the uncontested stipulated settlement filed into the record on November 10, 2022.

COMMISSIONER SKRMETTA: Move to bring the matter up under Rule 57.

COMMISSIONER GREENE: Second.

CHAIRMAN BOISSIERE: Moved by Commissioner Skrmetta, second by Commissioner Greene to bring the matter up. No opposition? [NONE HEARD]

COMMISSIONER GREENE: Move to accept Staff recommendation.

CHAIRMAN BOISSIERE: Moved by Commissioner Francis.

COMMISSIONER GREENE: Second.

CHAIRMAN BOISSIERE: Second by Commissioner Greene to accept Staff recommendation. No opposition? [NONE HEARD] So ordered. Next, please.

MS. BOWMAN: Next is Exhibit Number 10, which is Docket Number U-36254. This is Dixie Electric Membership Corporation's application for interim and final emergency rate relief pursuant to the extraordinary cost provision of its formula rate plan and request for order of the Commission directing DEMCO recognize paycheck protection plan loan forgiveness in 2022. It's a discussion and possible vote on an uncontested proposed settlement. On January 18, 2022, DEMCO submitted its application as indicated above. Notice of the application was published in the Commission's Official Bulletin, with no interventions. As set forth in the application, DEMCO's distribution system suffered heavy damage from hurricanes and other storms and in 2022, DEMCO experienced extraordinary expenses associated with the costs of repairing the damage to its systems caused by the hurricanes and other storms. At the same time, DEMCO was experiencing extraordinary expenses associated with hurricanes and other storms, it was also incurring extraordinary expenses due to the COVID pandemic. Material scarcity, supply chain issues, and labor shortages caused extraordinary increases in costs to DEMCO on several factors. DEMCO's rates are set by a Commission-approved

FRP per Order U-35359, under which DEMCO may seek recovery of extraordinary expenses outside of its annual FRP filing. Due to the timing of DEMCO's FRP filing, the extraordinary expenses that will be incurred in 2022 would not be addressed until DEMCO's 2023 FRP filing and would not be recovered by DEMCO any sooner than January 1, 2024. The Rural Utilities Services finances the substantial majority of DEMCO's loans, requires a minimum Times Interest Earned Ratio of 1.25 to be maintained as a default level for existing loans and for the approval of all new loans. The extraordinary expenses would have reduced DEMCO's TIER below the required 1.25 and caused DEMCO to breach its loan covenants. This could adversely affect DEMCO's ability to borrow the money it needs to operate, cause the interest rates to be higher on the money it is allowed to borrow, and potentially lead to even more drastic actions by its lenders. DEMCO's application identified extraordinary expenses of approximately $8.2 million, which translates to an additional revenue requirement of 11.5 million to produce a 1.40 TIER. DEMCO sought to recover this revenue amount in 2022 on an interim basis, subject to a final decision by this Commission and posting security. On February 25, 2022, this Commission issued an order approving the interim rate. Now, pursuant to its application, DEMCO is seeking approval and an order making the interim emergency rate of 6.24 mills per kilowatt hour to achieve this revenue a final rate, and an order directing DEMCO to recognize forgiveness of its Paycheck Protection Plan loan in 2022. The settlement between Staff and DEMCO resolves all issues in the proceeding, and if approved, the interim rate relief of 6.24 mills per kilowatt hour of electricity sold for the period of March 1, 2022 to December 31,

2022 approved by the Commission will be made final. DEMCO will be permitted to continue to collect this additional amount until December 31, 2022. Further, if the interim rate relief is made final, DEMCO will no longer be required to post security. Finally, if approved, the settlement will order DEMCO to recognize forgiveness of its PPP loan in the amount of $5,389,464.60 in the 2022 calendar year, which will reduce the amount of revenue DEMCO would otherwise require in 2022 to meet its TIER requirements. The settlement avoids further litigation and is a resolution that's fair, results in just and reasonable rates, and is in the public interest. Staff and DEMCO filed their unopposed joint motion pursuant to Rule 57 on October 28, 2022. Staff recommends that the Commission accept the unopposed joint motion pursuant to Rule 57 to accept the uncontested proposed settlement, with stipulated term sheet attached, filed into the record on October 28, 2022, subject to the conditions therein.

COMMISSIONER SKRMETTA: Move to bring the matter up under Rule 57.

COMMISSIONER GREENE: Second.

CHAIRMAN BOISSIERE: Moved by Commissioner Skrmetta, second by Commissioner Greene to hear the matter under Rule 57.

COMMISSIONER SKRMETTA: Move to approve Staff recommendation.

CHAIRMAN BOISSIERE: Okay. Move to approve by Commissioner Skrmetta.

COMMISSIONER GREENE: Second.

CHAIRMAN BOISSIERE: I think -- second by Commissioner Greene. I did have a question about this item. Did we have somebody who's willing to speak? Great. Come on up.

MR. KARL NALEPA: Good afternoon, Mr. Chairman and Commissioners. My name is Karl Nalepa with Resolved Energy Consulting.

CHAIRMAN BOISSIERE: Okay. Tell us, briefly -- and you and I met earlier. Tell us briefly about this item and how we got here today. What are we doing?

MR. NALEPA: This was a necessary need -- a necessary process for DEMCO to recover these extraordinary expenses within the framework of the FRP because we're in between its prior rate case and it's pending FRP. It allowed -- I think most importantly, DEMCO would recover these expenses in a timely manner so it can maintain its TIER, which I think if it fails to do that, increases costs to its customers. And so this is a rider that was in effect from March through December, it allows it to maintain its rider -- or its TIER because of those revenues.

CHAIRMAN BOISSIERE: How much is the rider, what does it cost, the rider?

MR. NALEPA: The total amount of recovery was about $11.5 million. The rider itself was 6.24 mils per kWh.

CHAIRMAN BOISSIERE: So about 6.24 per customer?

MR. NALEPA: Per kWh.

CHAIRMAN BOISSIERE: Per kWh. Okay.

MR. NALEPA: Right. For an average customer that would use, say, 1,000 kWh, it's a little bit more than that. It was just under $9 a month, but I think $8.95 a month.

CHAIRMAN BOISSIERE: Okay. And so that cost will, according to our actions here today and the collection by the company, will remove that charge from the customers?

MR. NALEPA: Correct. That --

CHAIRMAN BOISSIERE: After December.

MR. NALEPA: Correct. That rider will only last through December and then in DEMCO's next FRP filing, we'll have an opportunity to true up the actual revenues collected with the actual costs incurred as part of the FRP review next year.

CHAIRMAN BOISSIERE: Okay. Okay. Any other questions or comments? [NONE HEARD] So, okay. Well, thank you very much, sir.

MR. NALEPA: Thank you. I appreciate it.

CHAIRMAN BOISSIERE: I think it was moved by Commissioner Skrmetta and second by Commissioner Greene. Any opposition? [NONE HEARD] Hearing none, so ordered.

COMMISSIONER SKRMETTA: Move to adjourn.

CHAIRMAN BOISSIERE: Move to adjourn by Commissioner Skrmetta, second by Commissioner Greene and the Chair. Thank you very much. Where's our next B&E going to be held?

MS. BOWMAN: The next B&E is going to be held back in Baton Rouge at the Galvez Building and I'll give you the date, if you'll give me just one second. The date is December 14th.

CHAIRMAN BOISSIERE: December 14th back in Baton Rouge. Everyone between now and then have a great Thanksgiving. See you in December.

(WHEREUPON THE MEETING WAS ADJOURNED)

I certify that the forgoing pages 1 through 74 are true and correct to the best of my knowledge of the Open Session of the Business and Executive Meeting held on November 17, 2022 in Metairie, Louisiana.

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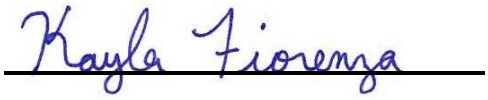
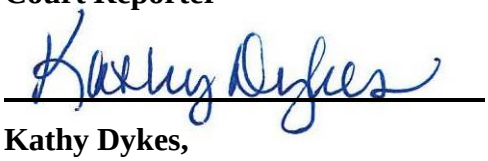


November 22, 2018

Kayla Fiorenza, **Date**
Court Reporter



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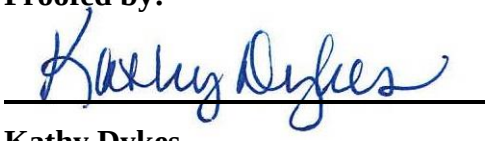

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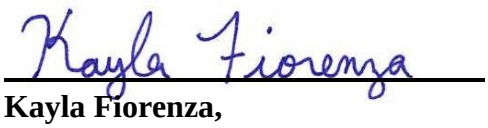

December 2, 2018

Kayla Fiorenza, **Date**
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